

Work Order ID 125312

125312

Page 1

Tuesday, October 07, 2014 10:40:55 AM

Item ID: D3118-3 Accept ***N900040100*** Setup Start ***NS1***
 Revision ID: Stop ***NS2***
 Item Name: Sign Assembly
 Start Date: 10/31/14 Start Qty: 2.00 **4**
 Required Date: 10/31/14 Req'd Qty: 2.00 ***2***
 Reference: ***2***
 Cust Item ID:
 Customer:

Approvals: Process Plan: MLJ Date: 14-10-08 Tooling: _____ Date: _____
 QC: _____ Date: _____ SPC (Y/N): _____ Date: _____
 Run Start ***NR1***
 Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr	Revision Nbr
D3118	E

100

0.00

100

Purchasing

Purchasing

PURCHASING

Memo

Issue P/O: 26522
 Manufacture as per dwg D3118

Possible Supplier: SRB TECHNOLOGIES
 Supplier P#: 9004043

Material release note required

Sign should be self-luminous to min. brightness of 160 microlamberts

CL 10/11/14 4

110

Receive & Inspect for Damage & Mat'l Certs

0.00

110

Packaging

Packaging

Memo

Ensure Material Release Note is attached

0.00

4x SP 14-12-23

DQA: _____ Date: _____

**WORK ORDER NON-CONFORMANCE / UPDATE**

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS <table style="width: 100%;"> <tr> <td>Skid-tube ☐</td> <td>Crosstube ☐</td> <td>Water Jet ☐</td> <td>Engineering ☐</td> </tr> <tr> <td>Machining ☐</td> <td>Small Fab ☐</td> <td>Prod. Eng. Coord. ☐</td> <td>Quality ☐</td> </tr> <tr> <td>Thermoforming ☐</td> <td>Finishing ☐</td> <td>Rec/Store/Packaging ☐</td> <td>Other ☐</td> </tr> <tr> <td>Large Fab ☐</td> <td>Composite ☐</td> <td>Supplier ☐</td> <td></td> </tr> </table>	Skid-tube ☐	Crosstube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐	
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Large Fab ☐	Composite ☐	Supplier ☐																

Root Cause	Date	Step	Qty	Description of work order update or non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Design									
Doc/Data									
Equip/Tooling									
Handling/Pre									
Material									
Operator									
Offset/Setup									
Process									
Supplier									
Training									
Transport									
Unapproved									

FAULT CATEGORY

Landing Gear ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Inspection Strip in Tube ☐ Marks/Chatter ☐ Turning Sequence ☐ Wave/Twist in Tube	General ☐ Bend ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Burrs ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Drawing ☐ Drill Holes ☐ Finish ☐ Fit/Function	☐ Folio/Program ☐ Grain ☐ Hardware ☐ Inspection Incomplete/Unqualified ☐ Instructions Incomplete/Unclear ☐ Misaligned/off center ☐ Mislabeled ☐ Misread ☐ Off-set ☐ Out of Calibration ☐ Out of Sequence	☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Positioned Wrong ☐ Power Loss/Surge ☐ Pressure/Forced ☐ Set-up ☐ Temperature/Cure ☐ Weld ☐ Wrong Stock Pulled ☐ Other
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Page 2

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 Item Name: Sign Assembly
 Start Date: 10/31/14 Start Qty: 2.00 ***2*** Cust Item ID:
 Required Date: 10/31/14 Req'd Qty: 2.00 ***2*** Customer:
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Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
 QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
120	QC6- Inspect dimensions to drawing	0.00							DAS 38 9-89

120

QC

Quality Control

Memo

Check dims to dwg and certification attached

JAN 05 2015

130 Identify as per dwg & Stock Location: Stock 0.00

130

Packaging

Packaging

Memo

0.00

4 DAS
89
9-89

JAN 06 2015

140 QC21- Final Inspection - Work Order Release 0.00

140

QC

Quality Control

Memo

0.00

15/1/16

MB-1-6

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

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Doc/Data									
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Material									
Operator									
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FAULT CATEGORY

Landing Gear ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Inspection Strip in Tube ☐ Marks/Chatter ☐ Turning Sequence ☐ Wave/Twist in Tube	General ☐ Bend ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Burrs ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Drawing ☐ Drill Holes ☐ Finish ☐ Fit/Function	☐ Folio/Program ☐ Grain ☐ Hardware ☐ Inspection Incomplete/Unqualified ☐ Instructions Incomplete/Unclear ☐ Misaligned/off center ☐ Mislabeled ☐ Misread ☐ Off-set ☐ Out of Calibration ☐ Out of Sequence	☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Positioned Wrong ☐ Power Loss/Surge ☐ Pressure/Forced ☐ Set-up ☐ Temperature/Cure ☐ Weld ☐ Wrong Stock Pulled ☐ Other
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Picklist Print

Tuesday, October 07, 2014 10:40:54 AM

Page 1

Work Order ID: 125312

125312

Parent Item: D3118-3

D3118-3

Parent Item Name: Sign Assembly

Start Date: 10/31/14

Required Date: 10/31/14

Start Qty: 2.00

Required Qty: 2.00

Comments: IPP A: 02.05.15 New Issue NG
12.05.11 AS PER DWG REV.D DD VERF:EC

IPP REV:B

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
9004043 *9004043* Sign Assembly		Purchased	No				Each	0.0000	**	24 4x			SP 14-12-23.

DQA: _____ Date: _____

**WORK ORDER NON-CONFORMANCE / UPDATE**

QA Closed: _____ Date: _____

Work Order update only ☐

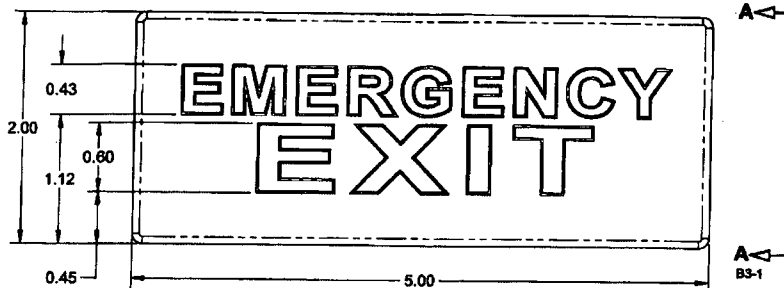
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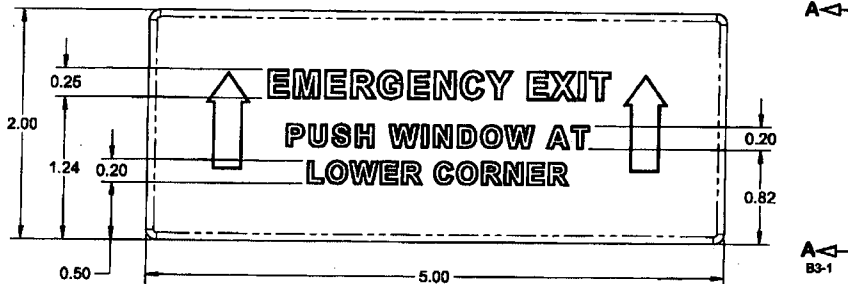
FAULT CATEGORY

Landing Gear ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Inspection Strip in Tube ☐ Marks/Chatter ☐ Turning Sequence ☐ Wave/Twist in Tube	General ☐ Bend ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Burrs ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Drawing ☐ Drill Holes ☐ Finish ☐ Fit/Function	☐ Folio/Program ☐ Grain ☐ Hardware ☐ Inspection Incomplete/Unqualified ☐ Instructions Incomplete/Unclear ☐ Misaligned/off center ☐ Mislabeled ☐ Misread ☐ Off-set ☐ Out of Calibration ☐ Out of Sequence	☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Positioned Wrong ☐ Power Loss/Surge ☐ Pressure/Forced ☐ Set-up ☐ Temperature/Cure ☐ Weld ☐ Wrong Stock Pulled ☐ Other
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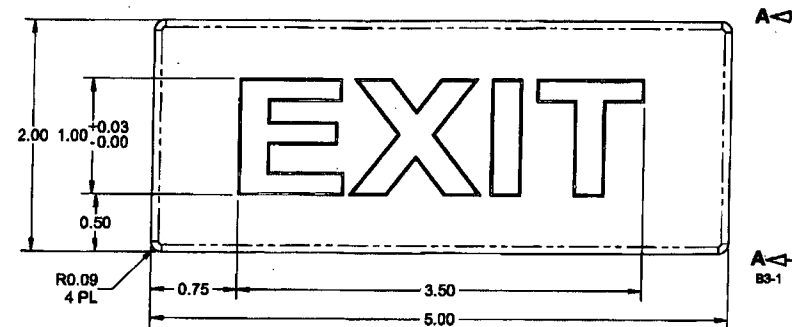
SPECIFICATION CONTROL DRAWING



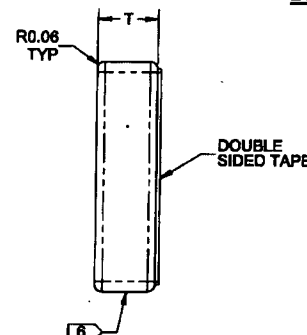
D3118-1 SIGN ASSEMBLY
REPLACES PREMIER P/N 027-57000-01,
BHT P/N 46660-01008-00



D3118-3 SIGN ASSEMBLY
REPLACES PREMIER P/N 027-57000-03,
BHT P/N 212-072-637-107



D3118-5 SIGN ASSEMBLY



VIEW A-A
C5-1
C1-1
B5-1

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 125312 MJS

14-10-08 RELEASED
2013-08-01
MP

NOTES:

- 1) MATERIAL: POLYCARBONATE
- 2) FINISH: N/A
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: N/A
- 6) IDENTIFICATION: WITH DART P/N "D3118-X" AND B/N "BXXXXX" PER DART QSI 044 8.1
- 7) WEIGHT: 0.30 lbs EACH
- 8) POSSIBLE SUPPLIER: SRB TECHNOLOGIES (CANADA), INC
320-140 BOUNDARY ROAD
PEMBROKE, ONTARIO, K8A 6W5
PHONE: 613-732-0055
FAX: 613-732-0058
- 9) SEE TABLE FOR SUPPLIER PROCUREMENT P/N'S
- 10) SIGNS SHOULD BE A RED BACKGROUND, CLEAR LETTERING WITH WHITE BORDER AROUND EACH LETTER
- 11) SIGNS SHOULD BE SELF-LUMINOUS TO MINIMUM BRIGHTNESS OF 160 MICROLAMBERTS

DART PART NUMBER	SUPPLIER PART NUMBER	THICKNESS "T"
D3118-1	9004030	0.52
D3118-3	9004043	0.52
D3118-5	9004001	0.66

E	REVISE SUPPLIER AND SUPPLIER PART NUMBERS	SFM	13.07.16
D	UPDATED TO COMPLY WITH QSI 043; ADDED SUPPLIER P/N PROCUREMENT CHART (2N A4-1) REF: PAR11-127	MB	11.11.02
C	ADD D3118-5	RF	05.02.22
B	ADD MINIMUM BRIGHTNESS = 160 MICROLAMBERTS	RF	04.05.05
A	NEW ISSUE	RF	02.04.15
REV.	DESCRIPTION	BY	DATE
DESIGN	DESIGN	DESIGN	DESIGN
DRAWN	DRAWN	DRAWN	DRAWN
CHECKED	CHECKED	CHECKED	CHECKED
MFG. APPR.	MFG. APPR.	MFG. APPR.	MFG. APPR.
APPROVED	APPROVED	APPROVED	APPROVED
DE APPR.	DE APPR.	DE APPR.	DE APPR.
DATE	13.07.16	DATE	13.07.16

DART AEROSPACE LTD
HAWKESBURY, ONTARIO, CANADA

DRAWING NO. D3118
TITLE SIGN ASSEMBLY
REV. E
SHEET 1 OF 1
SCALE NTS

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Chantal Lavoie

From: Harvey Siemens
Sent: Friday, October 24, 2014 10:39 AM
To: courtney@betalight.com
Cc: Chantal Lavoie; Roberto Fuentes; Mike Petsche
Subject: RE: DART P/N D3118-5 PO25450 material question

Courtney,

It is acceptable to Dart that the material used in the construction of the D3118-1/-3/-5 sign assemblies be:

- Case, polycarbonate
- Lid, acrylic

The drawing will be revised to that effect.

Please continue with the manufacture of the parts that are on order; hopefully we will have the drawing revised and off to you before they are ready to ship. If this is not the case, we are happy to accept the part with that material deviation.

Let me know if there's anything else that you need.

Regards,
Harvey Siemens
Director of Engineering – Calgary/Technical Support

DART AEROSPACE
T 1 403 717-0328 > 402
M 1 403 512-4099
www.dartaerospace.com



From: Chantal Lavoie
Sent: October-24-14 7:22 AM
To: Roberto Fuentes
Cc: Linda Lacelle
Subject: FW: DART P/N D3118-5 PO25450 material question

Good morning Roberto,
We have sign assembly on order with SRB, and they are asking if it is possible to use acrylic material for the lids, Please advise.
Thanks
Chantal

From: Courtney Sinclair [<mailto:courtney@betalight.com>]
Sent: Friday, October 24, 2014 9:07 AM
To: Chantal Lavoie
Subject: DART P/N D3118-5 PO25450 material question

Hi Chantal



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID PO26522

Purchase Order Date 11/14/2014

PO Print Date 11/14/2014

Page Number 1 of 2

Order From : VC-ROY001

RBC ROYAL BANK - VISA
PAYMENT CENTRE, PO BOX 4016, STAT. A
TORONTO, ON M5W 1X6
CA

Ship To : DART AEROSPACE LTD
1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA

FOI 100

Contact Name

Vendor Phone

Ship To Contact

Ship To Phone

Ship Via: FedEx Overnight collect

Ship Acct:

Buyer

Chantal Lavoie

Customer POID

Customer Tax #

10127-2607

Terms

COD

Currency

CAD

FOB

Destination-Collect

Line Nbr	Reference Vendor Part Number Line Comments Delivery Comments	Description/ Mfg ID	Req Date/ Taxable Promise Date	CD	Req Qty/ Unit of Measure	PO Unit Price	Extend Pri
1	9004043 AS PER DWG D3118 REV. E B125312	Sign Assembly	12/19/2014 Yes 12/19/2014		4.00 Each	\$367.73	\$1,470.
						Line Total:	\$1,470.
2	71401-45 Quality Procurement Clauses A005 RIGHT OF ENTRY A016 PERSONNEL QUALIFICATION A026 CERTIFICATE OF MATERIAL CONFORMANCE A041 QUALITY MANAGEMENT SYSTEM A042 DART NOTIFICATION BY SUPPLIER A043 RETENTION OF QUALITY DOCUMENTS	PROCUREMENT QUALITY CLAUSES	12/19/2014 No 12/19/2014		1.00	\$0.00	\$0.
						Line Total:	\$0.

8014-12-23.

PO Instructions: SRB TECHNOLOGIES

Note:

11/14/2014

SRB TECHNOLOGIES (CANADA) INCORPORATED

320 Boundary Road, Suite 140, Pembroke, Ontario, Canada; Phone (613) 732-0055

SRB20007

SHIPMENT PACKING SLIP AND MANIFEST

DATE:

December 22, 2014

WAYBILL #:

Fedex: 5820 8845 0578

DESTINATION:

Dart Aerospace Ltd; Hawkesbury, ON, Canada

[illegible]

TYPE OF SHIPMENT:

UN2915

☒ UN2911

UN2910

☐ **REGULAR**

☐ OTHER (SPECIFY):

NO. OF PACKAGES:

1

PACKED BY:

Shane Pleau - Import/Export Manag

TOTAL ACTIVITY:

17.00

Ci.

ATTN: Chantal Lavoie

DIM (in):

9 X 9 X 11

www.betalight.com

SHIPMENT WEIGHT (lbs.)

**SRB TECHNOLOGIES (CANADA) INC.**

320-140 Boundary Road
Pembroke, Ontario, Canada, K8A 6W5

Tel.: (613) 732-0055

Fax: (613) 732-0056

E-Mail: sales@betalight.com

Web: www.betalight.com

CERTIFICATE OF CONFORMANCE

ACCOUNT TO:

Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON
Canada K6A 1K7

CERTIFICATE OF CONFORMANCE ID:

CDN003202

YOUR REFERENCE:

PO26522

OUR REFERENCE:

PO26522

DATE:

December 18, 2014

ITEM #	PART NUMBER	DESCRIPTION/ SPECIFICATION	QUANTITY	REMARKS/ DELIVERY POSITION
1	9004043 SRBT P/N: 9004043	Sign Assembly T 4.25 Ci. (157.25 GBq) S/N's: 23236 – 23239	4	Batch # B26522 (PO26522) Mfg. December/2014

This is to certify that the whole of the material and/or parts described herein have been manufactured to the quality standards registered under ISO 9001:2008 and conform to the full specification of the appropriate drawings and purchase order requirements.

Test methods for Betalights™ and devices containing Betalights™, including leakage and surface contamination, conform to the British Defence Standard 62-4/4 and/or ANSI/HPS N43.4-2000.

Signed for on behalf of SRB Technologies (Canada) Inc.


N. Belleau, Quality Manager



**Canadian Nuclear Safety Commission
Radiation Safety Data Sheet**

This data sheet presents information on radioisotopes only.
For information on chemical compounds incorporating this radionuclide, see the relevant Material Safety Data Sheet.

Part 1 - RADIOACTIVE MATERIAL IDENTIFICATION

Chemical Symbol:	H	Common Names:	Tritium
Atomic Weight:	3	Atomic Number:	1

Part 2 - RADIATION CHARACTERISTICS

Physical Half-Life: 12.35 years

Unconditional Clearance Levels: Activity Concentration (Bq/g) 1×10^2

CNSC Exemption Quantity: Activity Concentration (Bq/g) 1×10^6
Activity (Bq) 1×10^9

Principal Emissions	Average Energy of Most Abundant Emission (MeV)	Maximum Energy of Most Abundant Emission (MeV)	Gamma-Ray Dose Rate at 1m Distance (mSv/h per GBq)	Shielding Information ¹
Neutrons	-	-	-	-
Gamma & X-ray	-	-	-	-
Beta* & Electron	0.0057	0.0186	-	Total absorption: <0.1 mm glass or <0.1 mm plastic
Alpha	-	-	-	-

* Where beta radiation is present, bremsstrahlung radiation will be produced. Shielding for bremsstrahlung radiation must be considered.

¹Delacroix, D. et al, Radionuclide and Radiation Protection Data Handbook 2002.

Progeny

Part 3 - DETECTION AND MEASUREMENT

Method of Detection:

Wipes counted by a beta probe (e.g., wipes counted by a liquid scintillation counter)

Dosimetry:

External: TLD (whole body & skin) _____ Extremity _____ Neutron _____
Internal: Whole body _____ Thyroid _____ Urine analysis ☒ Other (specify) _____

Part 4 - PREVENTATIVE MEASURES

Tritium is not a radiation hazard unless it enters the body. Once in the body, tritiated water is uniformly distributed in the body water and can then expose tissue. The dose from inhaled elemental tritium gas is 10,000 times less than that from tritiated water. Tritiated water can be absorbed through the surface of skin, leading to an internal exposure. Gaseous tritium is a fire and explosion hazard when exposed to heat or flame and can react vigorously with oxidizing materials.

Recommended protective clothing: Lab coat and PVC gloves (0.5 mm thick) are preferred because of this material's low permeability to tritiated water. Many tritium compounds readily penetrate gloves and skin. Handle these compounds remotely, wear two pairs of gloves and change the outer layer at least every twenty minutes. Plastic aprons provide added protection especially against tritiated water. Plastic suits may be necessary for work at TBq levels or in an atmosphere contaminated with tritiated water.

Handle tritiated water, gases and volatile liquids in ventilated enclosures. Use glass containers to store tritium compounds because tritiated water and tritiated organic solvents will pass through plastic. Use disposable absorbent liners on trays.

Consult CNSC license for requirements concerning engineering controls, protective equipment, and special storage requirements.

Part 5 - ANNUAL LIMIT ON INTAKE

	Ingestion	Inhalation	
Compound Type	Tritiated water	Tritiated water	Elemental tritium gas
Annual Limit on Intake (Bq)	1.0×10^9	1×10^9	1.0×10^{13}

EMERGENCY PROCEDURES

The following is a guide for first responders. The following actions, including remediation, should be carried out by qualified individuals. In cases where life threatening injury has resulted, **first** treat the injury, **second** deal with personal decontamination. In the case of an emergency, the Radiation Safety Officer should be contacted as soon as practicable.

Personal Decontamination Techniques

- Wash well with soap and water and monitor skin
- Do Not abrade skin, only blot dry
- Decontamination of clothing and surfaces are covered under operating and emergency procedures

Spill and Leak Control

- Alert everyone in the area
- Clear area
- Summon Aid

Emergency Protective Equipment, Minimum Requirements

- Gloves
- Footwear Covers
- Safety Glasses
- Outer layer or easily removed protective clothing
- Suitable respirator selected

Canadian Nuclear Safety Commission
P.O. Box 1046, Station B
Ottawa, Canada
K1P 5S9

Tel: (613) 995-5894 Fax: (613) 995-5086
24 Hour Emergency Hotline: (613) 995-0479

Revision number: 1

Date of revision: 19 September 2011